Water Safety Information

Risk Control for Inland Water Sites

Introduction

The first consideration in a strategy for accident prevention is always to try to remove, or separate, the public from the hazard. At sites such as water treatment plant, where only authorized visitors are permitted, complete restrictions are necessary. However, at many inland water sites, it would be neither practical, reasonable nor desirable to attempt to prevent drowning by denying access to water, or by providing supervision along every waters edge. Open water, like our road network, is an integral part of our environment with which we must learn to live safely, whilst those in positions of responsibility play their part in controlling the risk to a reasonable practicable level.

Where access restriction is not appropriate, steps must be taken to control risk to an acceptable level using the risk assessment process described above and identifying appropriate risk control measures, some of which are outlined below. It is important that operators responsible for adjacent sites (e.g. sections of riverside), do, where possible co-operate in the task to ensure consistency for visitors passing between sites.

Edge Protection

Whilst the profile and nature of the water's edge is a fundamental factor in risk, addressing the edge in isolation will not address all the safety issues. Protective measures should always be supplemented by adequate information and warnings; education of visitors; and, where appropriate, rescue equipment and supervision. Some physical measures to prevent public access are outlined below.

Grading

One critical feature of water edges affecting the outcome of accidental entry into the water from the bank, is the gradient above and below the water line. Research undertaken by the RLSS UK in the 1980s ("Drownings in the British Isles" 1982, 1983), demonstrates that many people who drown, do so in water which is near their own standing depth. Maintaining or regaining standing balance whilst 'in their depth' is very difficult for weak or non-swimmers.

Therefore, where risk is considered to be high, but an open aspect to the water is required, it is preferable to maintain a gentle underwater gradient from the edge. This should be such as to allow a person to stand with their head above water, at a distance of two body lengths from the shore. This section of shallow water will provide protection from the deep water. Grading above and below the water line, can, at some locations, successfully control the risk of falling in.

It is recommended therefore, that shallow water (less than 0.66m) should extend a minimum of 2M from the water edge, via a 1:3 gradient, and a further protective margin of 1:75m with depths from 0.65m to 1.36m via a 1:2.5 gradient.

Planting

In addition, or as an alternative to grading, and where access to the water's edge is required, but either a steep gradient (falling risk) or very shallow gradient (swimming temptation) exists, the planting of bankside or emergent marginal aquatic vegetation, particularly with sharp foliage, can provide adequate yet aesthetic protection, with additional environmental benefits. Mud at the water's edge is also unappealing and acts as a deterrent.

Suitable plants which will deter access to the water include:

Emergent Planting
Phragmites australis
Typha angustifolia
Carex riparia
Scirpus lacustris
Iris pseudacorus

Inhospitable Planting
Salis spp – Willow
Prunus spinosa – Blackthorn
Crataegus manogyna – Hawthorn
Rubus fruiticosus – Bramble
Rosa Canina – Dogrose

Footpaths
A further protective measure (where public rights of way permit), is to define footpaths away from the water's edge, creating a 'margin' of vegetation between the two. This option is particularly appropriate where views over the water feature are required, and the natural beauty of the site is to be retained. Where a particular section of water has been

assessed as higher risk, the footpath can lead visitors away from the water altogether. Alternatively, where risk is deemed low, due perhaps to the shallow depth of the water, (as found at some duck ponds for instance), a painted yellow line can be a useful means of clearly defining the boundary between path and water.

Fencing

In some circumstances, where the risk is high due to the nature of the edge, the hinterland activity or a combination of the two, then fencing may be necessary.

The level of assessed risk will affect the choice of barrier. At low risk sites, the function of the barrier might be merely to 'deflect' the public from the water's edge, therefore a post and chain or a single rustic rail might be adequate.

Where overall risk is identified as moderate but where a particularly sensitive location is identified i.e. deep water or pinch points, a section of more substantial fencing may be required. A high level of risk may lead to the installation of balustrade, combined with warning signs, to exclude members of the public from gaining access to the water edge.

The balustrade or fencing will require regular maintenance and inspection, it may be subject to vandalism, and it will usually remain scaleable. The effect of barrier erection on other user groups, such as boaters, will also have to be taken into account, to ensure that landing points are provided and that there is no risk of crushing.